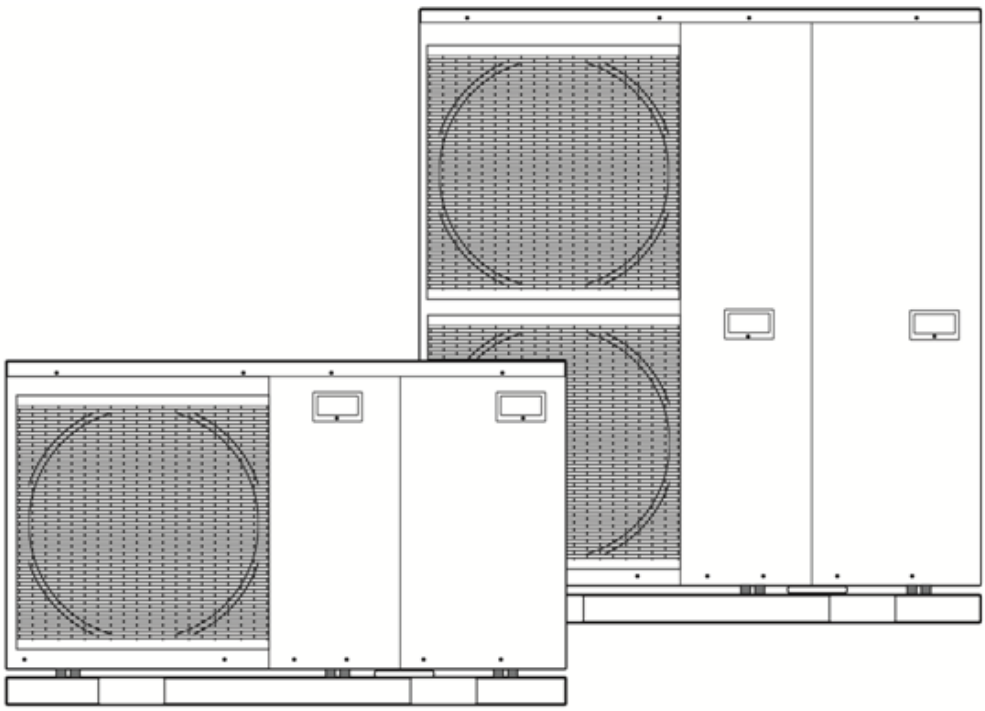
Dimplexrenewables®

LA 6 MI
LA 9 MI
LA 12 MI
LA 16 MI

Installation Instructions

For LA MI inverter air-to-water heat pump systems packages



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The installation instructions are intended for use by the installer whilst they are on site. Further clarification can be obtained from the relevant technical manuals.

Supporting documents

The following documents are available to aid in the planning, installation, operation and maintenance of the Air-eau heat pumps:

Technical manuals

Contains the necessary information required during the planning stages.

- Air-eau inverter heat pumps packages
- SmartRad

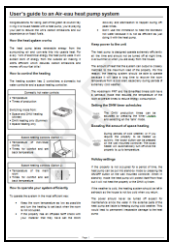
Installation instructions

Contains the necessary information required during the installation.

- Air-eau inverter heat pump packages (this document)
- EC-eau cylinders
- SmartRad

User guides

Contains the necessary information for the user for operation and maintenance of the system



- Air-eau heat pumps (Pack 1 and 2 – standard heating and DHW) for standard users
- Air-eau heat pumps (Pack 1 and 2 – standard heating and DHW) for sheltered housing

The installation of an Air-eau heat pump should only be carried out by a suitably trained and competent person who is approved by Dimplex. All installations should be in accordance with this document and the planning manual to ensure efficient operation.

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Section 1: Scope of delivery and handling

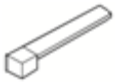
Description	Qty	
Protective grommet to prevent damage to cables (LA 12 / 16 MI only)	2 + 3	
Remote controller for internal wall mounting	1	
Remote controller cable 15m long	1	
Screw (M4 self tapping - 14mm) for wall attachment of remote controller	3	
Cable ties	3	

Table 1: Items supplied with the LA MI

Product handling

The heat pump is large and heavy. The handling of the unit should only be done using lifting tools and sling which can be fitted into sleeves at the unit's base.

Use a wooden pallet for transporting the heat pump to the final installation location.

Note that the two metal rails that hold the heat pump together are essential for the structural stability and should not be removed. Removing these rails would invalidate the warranty.

When transporting the heat pump, ensure that it is not tilted more than 45° (in any direction). Tilting the heat pump would cause the oil from the compressor to cause damage to other components within the refrigerant circuit.

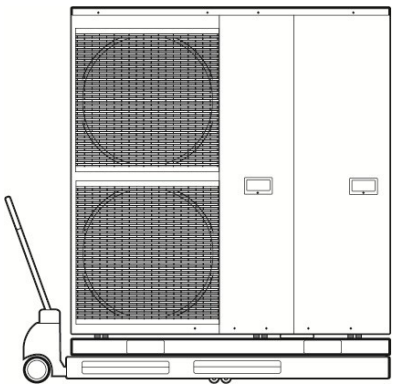


Figure 1: Moving a heat pump with a pallet truck or similar

Section 2: Pre-installation checks

Correct selection of the heat pump, heat emitters and circulation system is essential for efficient operation of the entire system.

For information about efficient design and operation see the Inverter heat pump planning manual.

Intended Use

This device is only intended for use as specified by Dimplex as detailed within this technical manual. The air-to-water heat pump is to be used exclusively for the heating of heating water in a closed circuit. Any other use beyond that intended by the manufacturer is prohibited.

Persons, especially children, who are not capable of operating the device safely due to their physical, sensory or mental abilities or due to their inexperience or lack of knowledge, must not operate this device without supervision or instruction by the person in charge.

Before starting the practical work the installer must ensure that the following information has been confirmed during the design stage.

- The heat pump has been correctly sized to meet the heat load.
- The heat emitters system has been suitably sized ensuring a low flow temperature design.
- Any requirements under the MCS scheme (if applicable) have been met.
- The cylinder has been correctly selected to match the Domestic hot water demand and also match the heat pump.
- The method of communicating a heating demand to the heat pump as been confirmed i.e. wall thermostat

Section 3: Installation considerations

The installation of an air source heat pump should be carried out by a Dimplex Accredited installer.

Installation location

The heat pump is for outdoor installation only. The following should be verified. Further information is available in the planning manual.

- Planning permission has been applied for where necessary.
- There is adequate clearance for efficient performance as shown in Figure 3 and the discharged air does not recirculate.
- The unit is positioned to minimise the effects of noise upon the properties occupants and its neighbours.
- The condensate can easily be drained away.
- Hydraulic connections can easily be made to the heating system and the DHW cylinder.
- There is no risk of a flammable gas leak or any outlets vents from any other system.
- The wiring lengths come within reasonable ranges particularly taking note of the 15m controller cable.
- The heat pump is adequately fixed to prevent tipping.

Fixing of the heat pump

The heat pump should be fixed on two flat, horizontal and solid hard surfaces such as concrete pads that are capable of taking the unit's weight and draining the condensate. The fixing should be strong enough to prevent the unit from tipping over if the base becomes unlevel over time.

	Suggested dimensions of concrete pads
A	152
B	980
C	300
D	356
E	400
F	520
G	400
H	600

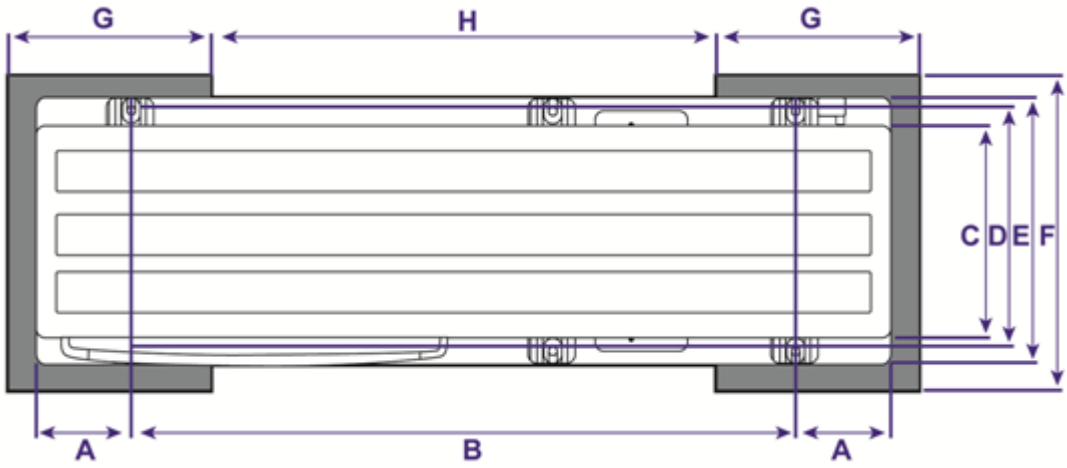


Figure 2: Top view of two concrete mounting blocks that allow the condensate to drain away via a gravel soak away.

Minimum Ventilation clearances

For adequate air flow the distances shown in Figure 3 must be observed. The free field indicates that no object will disrupt the air flow out of the unit.

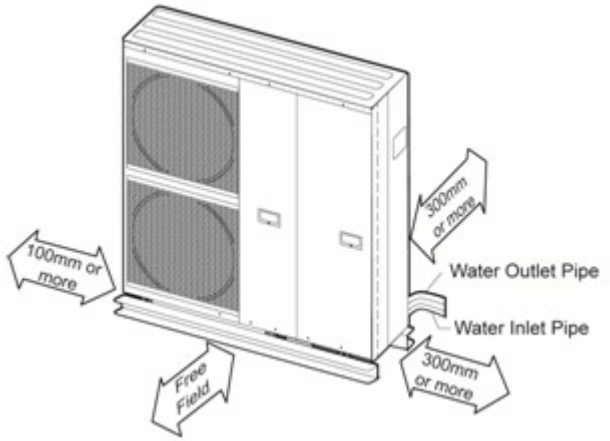


Figure 3: Minimum distances to objects to ensure adequate ventilation

Minimum maintenance clearances

It must be possible to carry out maintenance work without hindrance. The clearances displayed Figure 4 should be observed. For example if the unit is installed on a balcony there must be a space measuring 1000mm in front of the unit of maintenance.

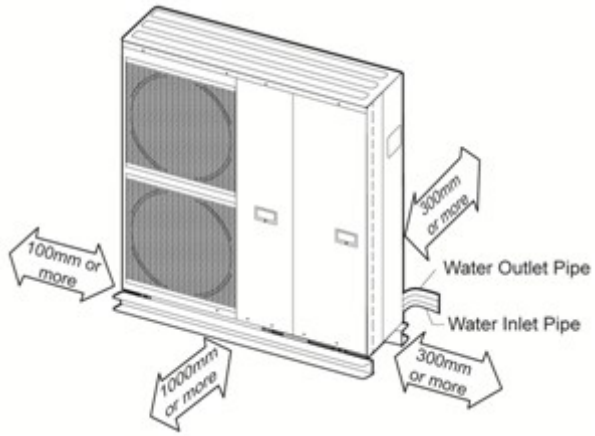


Figure 4: Minimum clearances for maintenance (not including clearance for air circulation)

Wall mounting

If the heat pump is to be wall mounted a condensate collection tray (supplied by the installer) should be fixed under the heat pump. The pipe from the tray to a suitable drain should be heated so that it can't freeze and become blocked.

Section 4: Heating System Connection

When connecting the heating system, all applicable regulations must also be adhered to including all relevant European and national regulations and local building regulation codes.

Work that requires the covers to be removed must only be carried out under supervision of qualified contractor, installation engineer or service person.

The installation of an air source heat pump must be carried out by a Dimplex Qualified installer.

The following should be verified before connecting to the heating system. Further information is available in the planning manual.

- The 50L minimum water volume of the system is observed by the installation of a buffer tank.
- A dirt filter is installer on the return pipe to the heat pump.
- The pipe sizes are adequate to allow the correct minimum water flow rate through the heat pump.
- A by-pass valve has been designed into the circuit to ensure there is always flow though the heat pump even when the heating circuits are closed.
- Air bleed valves have been installed at every highpoint in the pipe work.

External pipe work

The pipe work running from the heat pump into the property should be sufficiently insulated to minimise the heat loss and consideration should be given to using the correct material so that it does not corrode.

Minimum heating water flow rate

The minimum water flow rate which is stated in the 'performance data table' must be observed. The following factors should be considered:

- Hydraulic resistance of the pipe work. Special attention should to given to ensure the correct pipe diameter is chosen considering the required flow rates.

  As a rule of thumb 28mm pipe work should be used although the sizing of the pipe work remains the responsibility of the installer.

- To minimise energy consumption the pump should run of the lowest speed possible whilst still achieving the correct flow rate. The resistance of all the pipe fittings, filter, heat emitters and condenser must be taken into account.

Failure to observe the minimum water throughput will cause the heat pump not to work due to operation of the flow switch alarm (H62).

The maximum water throughput is 20% more than the stated minimum water throughput. Exceeding the maximum flow rate would result in an inefficient system operation due to increased pumping losses.

For systems in which the heating water flow can be shut off via actuators or thermostatic valves an overflow bypass valve must be installed to guaranteed to minimum water flow rate.

Taconova flow checker

The Taconova flow checker is provided in every system package to provide a simple way to verifying that the flow rate is correct. The flow rate is read on the bottom of the spinner as shown in

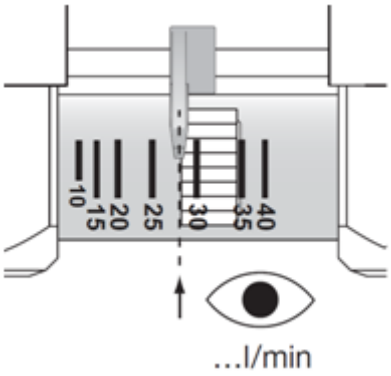


Figure 5: Correct reading of flow rate on the taconova flow checker

The flow checker should be installed in a visible location inside the property and as close to the heat pump flow as possible. In order given an accurate reading the pipe installation distances shown in Figure 6 should be observed as well as the flow direction as shown in Figure 7.

It is important to install the flow checker on the flow pipe so it is protected from impurities within in the system via the filter on the heat pump return.

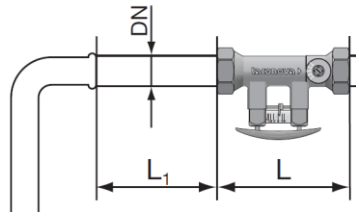


Figure 6: Minimum straight pipe distance before entrace to Taconova unit

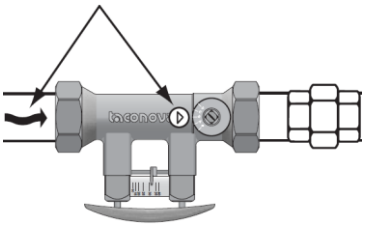


Figure 7: Ensure the flow rate through the Taconova is in the same direction as the arrow

Frost protection

So long as the heat pump is connected to the mains electrical supply the automatic antifreeze function will prevent the water in the pipes freezing during cold weather.

In case of a prolonged power supply failure or a circulation pump failure the system must be drained using the screws on the flow and return connections. When water is idle inside the system, freezing up is very likely to happen which could damage the system beyond economic repair.

If the heat pump is taken out of service or in the event of a power failure, the system has to be drained if freezing weather is a possibility.

The installer should conduct a risk assessment to determine the likelihood of water freezing in the heat pump and interconnecting pipe work in the event of a power failure during cold weather. The heating circuit should be dosed with suitable antifreeze if heat pump system is in a building where a power failure cannot be detected or the occupants would be unable to drain the system. If antifreeze is used the concentration should be large enough to prevent freezing for the coldest local temperature and the installer should ensure the glycol is vented to a suitable place to prevent contamination of the environment or sewage system in the event the pressure relief valve activating.

Condensate

During normal operation the heat pump will remove water vapour from the air. The condensate will run down the evaporator into the condensate tray where it will drain out of the unit. Defrosting takes place up to 16 times per day, with up to 3 litres of condensed water being produced each time.

Condensed water that forms during operation must be drained off frost-free. The heat pump must be mounted on a level surface to guarantee proper drainage. The condensate should drain onto a surface such as gravel.

If the condensate is drained into a pipe, it must have a minimum diameter of 50mm and should be fed into the drain for rain water to ensure that large quantities of water can be drained off.

The condensate must drain on to an surface that is freely draining. It must not drain on to footpaths or patios as it could refreeze and become a hazard.

Flushing the system

It is advisable to fit specific connections for flushing and filling as shown in the plumbing schematics. Before connecting the heating water system to the heat pump, the heating system must be flushed to remove any impurities and residue from sealants, etc. Any accumulation of deposits in the condenser could reduce the heat pumps performance. Do not use worn out piping that may have become blocked over time.

Ensure that impurities are not flushed though the heat pump since they could block the channels in the condenser.

Filter

It is essential to install a filter immediately before the water inlet to the heat pump. Not installing this filter would invalidate the warranty of the heat pump as debris can easily block the condenser channels.

The MFK114 isolation valve as shown in Figure 8 is included in the heat pump packages. The valve can be closed and the filter removed and checked without having to drain the system.

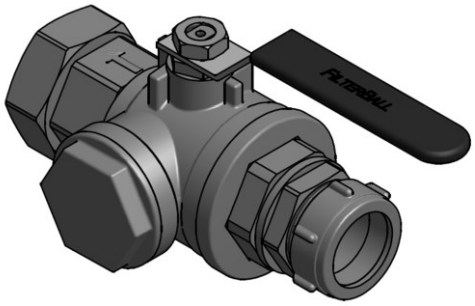


Figure 8: Isolation valve and filter supplied in LA MI packages to be fitted to the heat pump return.

Figure 9: Isolation valve supplied in package to be fitted to the heat pump flow.

Filling the system

The system should be filled with potable water. The system water should be treated with standard central heating inhibitors.

The cold fill gauge pressure on the heat pump should be between 0.8 and 1.5 bar (0.08-0.15MPa). This will rise during normal operation.

De-aeration

Air trapped in the system causes air locks which in turn cause poor water flow around the system. Every high point in the system should have a means of bleeding out air which is supplied by the installer.

The pressure relief valve shown in Figure 11 can be used to purge the air from the heat pump during filling.

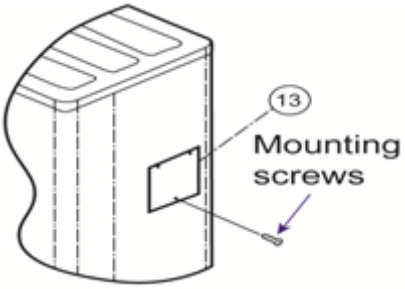


Figure 10: Location of pressure relief valve

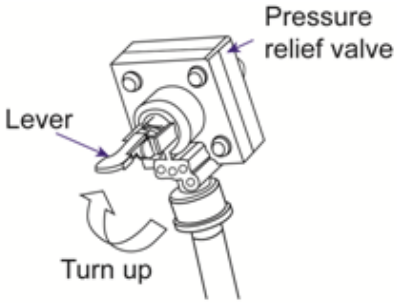


Figure 11: Pressure relief valve

Expansion vessel sizing

The heat pump comes with an expansion vessel already installed as shown in the 'Performance data table'.

> Depending upon the specific system the installer must determine if a second expansion vessel is required.

For most installations the 10L expansion vessel should be able suitable with a volume up to 150L and a static height of 7m. The 6L expansion vessel should be suitable for a system volume up to 90L and a static height of 7m.

2 port valves

The heat pump packages include 2 x F228 Horstmann two port valves as shown in Figure 12 to switch between space heating and domestic hot water mode. Fit the valves ensuring that the actuator head is not below the horizontal level of the pipe work and that the flow is in the direction of the arrow. Remember to make allowances for maintenance and replacement.

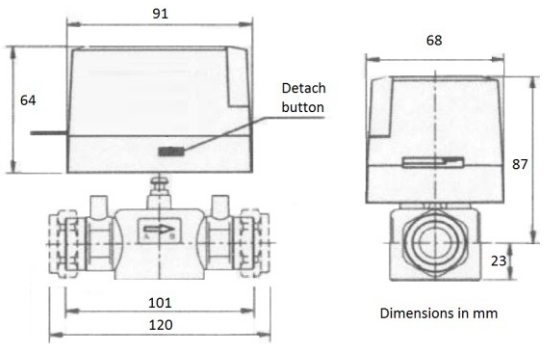


Figure 12: Dimensions of F228 valve

> The F228 valves have been specifically selected for their fast operating times. When switching from heating to DHW the heat pump flow must not be restricted. If a different valve is used, the valve must be fully open within 6 seconds of being switched.

Controlling DHW temperature

The cylinder temperature is controlled via an NTC2 sensor.

For safety reasons the heat pump controller also checks for continuity from the DHW thermostat. The temperature regulation thermostat and high limit stat are wired in series. To keep the contacts closed on the regulation stat the dial must be set to maximum. The contacts on the high limit stat will remain closed during normal operation. If the heat pump does not detect continuity across both the regulation stat and high limit stat an H91 error will occur.

The thermostat on the cylinder should not be modified to disable the regulation stat or high limit stat.

A label similar to that shown in Figure 13 should be supplied by the installer and fixed on the cylinder to let the user know.

TEMPERTURE ADJUSTMENT

The temperature of the hot water in this cylinder is set using the wall mounted heat pump controller. The setting shown on this thermostat does not affect the hot water temperature.

For normal operation the dial should be set to the maximum position.

Figure 13: Notice to be supplied by the installer and fixed next to cylinder thermostat

Section 5: Electrical Connection

When connecting the heat pump to the power supply, the relevant EN standards must be complied with. Any further connection requirements stipulated by local utility companies must also be observed. It is important that the hydraulic connections have been completed prior to switching on the power supply.

Routing of cables within the heat pump

- To avoid electrical cables becoming damaged by sharp edges they must exit through the grommets located on the bottom edge of the machine.
- The cables must be secured using the supplied cable ties and the clamps on the control board.

Ducting cables

To access the electrical connections only the front right hand panel of the heat pump outer casing needs to be removed as shown in Figure 14.

Depending upon the installation the heat pump could have the following cables that it will be necessary to route from the heat pump into the property.

1. Main power supply cable
2. Heat pump controller
3. Communication cable for 2 way valves, high limit stat etc, room thermostat.
4. Domestic hot water sensor
5. Domestic hot water immersion heater (booster heater)

For typical wiring and hydraulic schematics see section 16 at the end of this document.

Ducting should be used to ensure that the enclosed cables are protected from the effects of weather, mechanical snagging or wear, rodent damage ect. The ducting should be positioned in such away to ensure that water will not track along the ducting and into the heat pump or property.

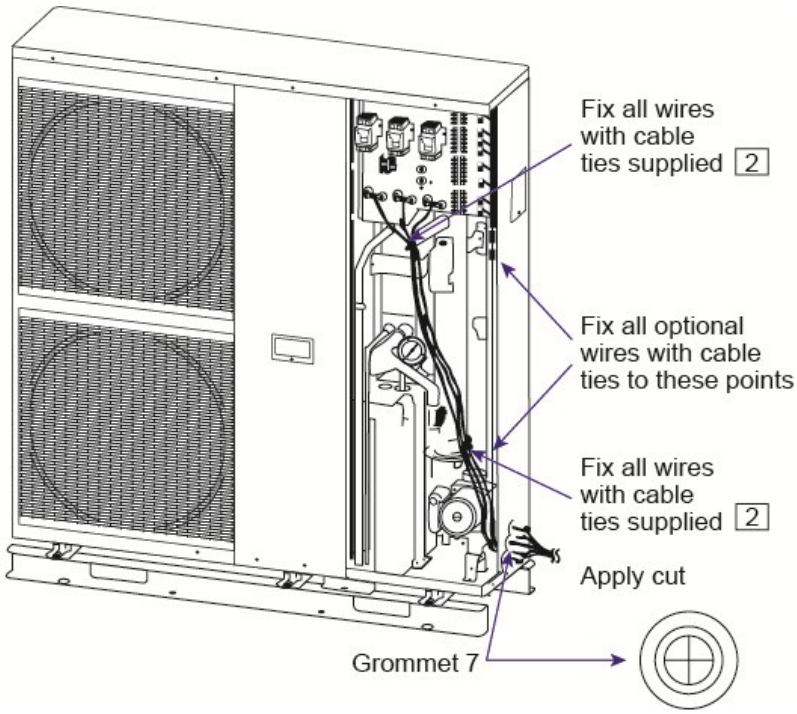
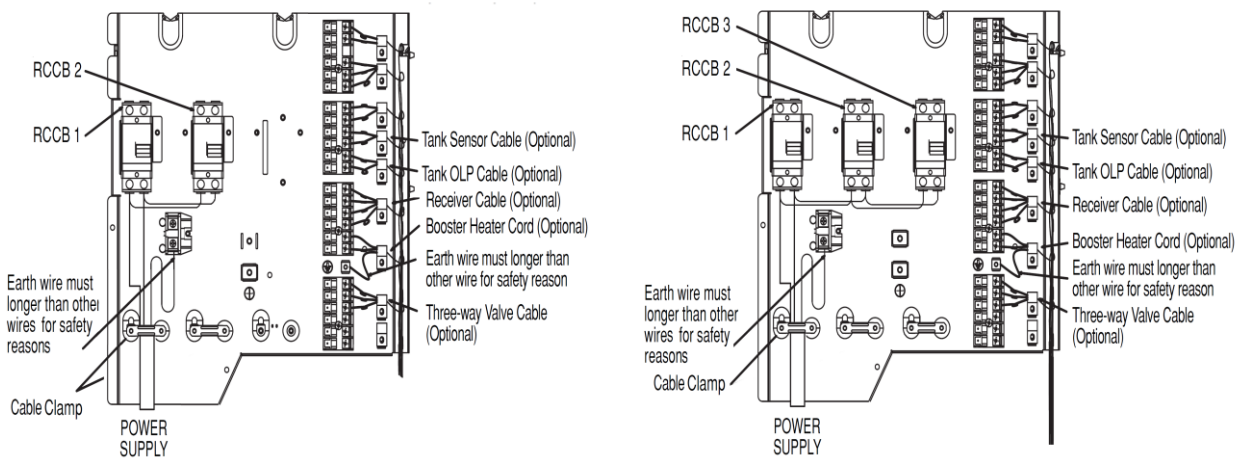

Fix all wires with cable ties supplied 2
Fix all optional wires with cable ties to these points
Fix all wires with cable ties supplied 2
Apply cut
Grommet 7

Figure 14: Correct cable routes through heat pump

Connection of the power supply to the Heat pump


RCCB 2
RCCB 1
Tank Sensor Cable (Optional)
Tank OLP Cable (Optional)
Receiver Cable (Optional)
Booster Heater Cord (Optional)
Earth wire must longer than other wire for safety reason
Three-way Valve Cable (Optional)
Earth wire must longer than other wires for safety reasons
Cable Clamp
POWER SUPPLY
RCCB 3
RCCB 2
RCCB 1
Tank Sensor Cable (Optional)
Tank OLP Cable (Optional)
Receiver Cable (Optional)
Booster Heater Cord (Optional)
Earth wire must longer than other wire for safety reason
Three-way Valve Cable (Optional)
Earth wire must longer than other wires for safety reasons
Cable Clamp
POWER SUPPLY

LA 6 and 9 MI **LA 12 and 16 MI**

Figure 15: Connection of the power supply cable

Main power supply cable

The power connection of the heat pump is made via a standard 3-core cable. The cable has to be supplied by the installer and the wire cross-section is to be selected according to the power consumption of the heat pump as shown in

Similarly, the main circuit breaker (MCB) at the distribution board should be correctly rated as shown in Table 2.

For maintenance purposes the power supply of the heat pump must be equipped with an isolating device in the vicinity of the heat pump. The isolating device must have a contact gap of at least 3mm. In addition to the maintenance isolator an automatic 2-pole automatic circuit breaker should be installed.

The heat pump should only be connected to a permanent mains supply.

The maximum current carried in the supply cable must be calculated using Table 2 depending upon the how the heat pump is configured. For example, it is not always necessary to connect the inline flow boiler. In other installations where there is no DHW cylinder is not necessary to connection the DHW immersion. Every installation will require power to RCCD 1 (compressor and control circuits).

Once the maximum supply current is known the installer must then supply a suitably rated cable depending upon the run length and the type of environment where it will pass.

	RCCD 1	RCCD 2		MCB	
	Compressor & controller	In line flow boiler + DHW immersion switched by heat pump	In line flow boiler + DHW immersion switched by a relay controlled by the heat pump or no DHW immersion installed	Total running current (Amps)	Suggested 'type C' MCB rating
LA 6 MI	21A	26A	13A		
	•	•		47	50
	•		•	34	50
LA 9 MI	23A	26A	13A		
	•	•		49	50
	•		•	36	50

	RCCD 1	RCCD 2	RCCD 3		MCB	
	Compressor & controller	In line flow boiler	DHW immersion switched by heat pump	DHW immersion switched by a relay controlled by the heat pump or no DHW immersion installed	Total running current (Amps)	Suggested 'type C' MCB rating
LA 12 MI	25A	26A	13A	0A		
	•	•		•	51	63
	•	•	•		64	80
LA 16 MI	27A	26A	13A			
	•	•		•	53	63
	•	•	•		66	80

Table 2: Calculation of running current for entire heat pump to size power supply cable and MCB at distribution board.

Inline flow boiler

If the inline flow boiler is not wired in the frost protection function will not fully function. The circulation pump will run but no additional heat will be added to the system by the inline flow boiler. This increases the risk of the water in the system freezing.

Figure 16: Manual reset on the over Inline flow boiler

The OLP located on the inline flow boiler, as shown in **Figure 16** prevents the water from overheating. Before manually resetting the cause of tripping should be rectified. The OLP can be manually reset by:

1. Removing the OLP Cover.

2. Using an insulated tool to gently push the centre button on the OLP.

3. Replace the OLP cover.

Domestic hot water immersion

The heat pump is capable of switching a 3kW immersion directly without the need for an additional relay as shown on the standard wiring diagram.

Depending upon the wiring runs it may be more suitable that the heat pump switches a relay rather than the immersion directly as shown in Figure 17. This would mean that the cable from the heat pump to the cylinder could have a lower current rating and therefore, could be combined with the multi-core cable rather than run a separate cable.

This method is particularly useful in retro-fit applications where the existing cylinder already had an immersion heater and high current supply fitted.

If this is the case the installer should supply an inline fuse rated at an appropriate current for the relay selected and the maximum current rating of the multi-core cable as shown in Figure 17.

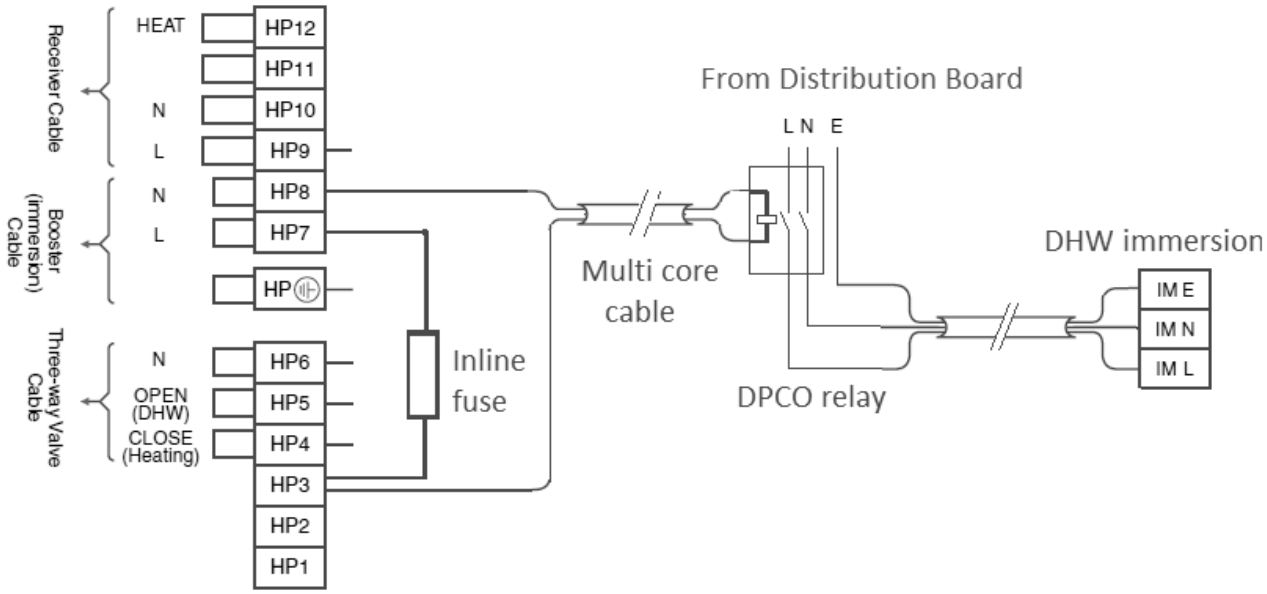


Figure 17: Wiring for Heat pump to control DPCO relay to switch supply for immersion

Controller cable

The controller cable is connected to the heat pump controller using the two rectangular plug connectors as shown in Figure 18. The cable cannot be extended because this would increase the resistance and correct operation of the controller cannot be guaranteed. The cable is 15m long but 1.5m is required inside the heat pump leaving 13.5m for routing to the controller. The cable is included within the scope of supply. The power for the controller is supplied from the heat pump.

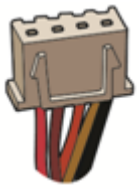


Figure 18: Connection terminals on the controller cable to controller inside the property.

The controller cable is connected to the heat pump via a short extension lead which protrudes from the heat pump as shown in Figure 19. On the end of the extension cable is a dust cover that must be removed before the cable can be connected. The controller cable connects to the extension cable as shown in Figure 20.

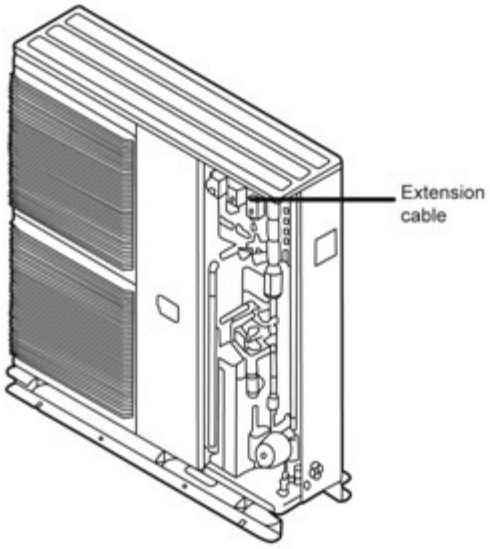


Figure 19: Location of the extension cable for connection of the 15m controller cable

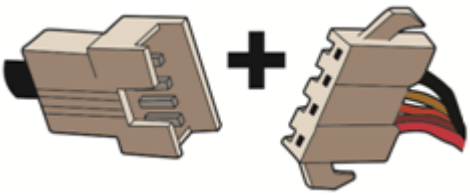


Figure 20: Terminals of the extension lead and 15m controller cable

Each end of the controller cable is different. Make sure you install it the right way around!

Electrical connections with the system

The following section contains general information about the communication connections. Full wiring diagrams and hydraulics for standard systems are available in Section 16.

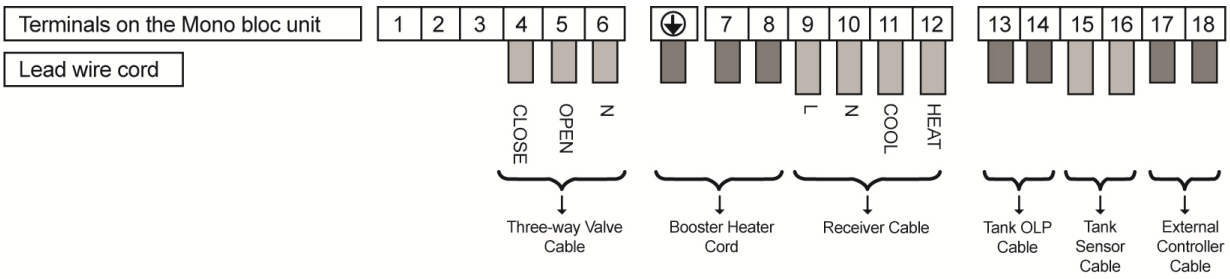


Figure 21: Heat pump communication connections

External controller cable	This can be used to remotely put the heat pump in standby mode upon breaking the connection from an external control device. When in standby the heat pump frost protection will still be activated. To enable this function a factory fitted jump lead between terminals 17 and 18 must be removed.
2 x Two way valves	2 x two-way valves are necessary if the heat pump needs to switch mode from space heating to domestic hot water production.
Booster (Immersion) heater	This is the immersion heater installed in the DHW cylinder. It immersion can either be switched directly by the heat pump or a relay can be fitted locally to the cylinder as shown in Figure 17.
Receiver Cable	The receiver cable is used to communicate a heating demand to the heat pump from a device such as a wall mounted thermostat. Connection of the receiver cable is essential to provide 'boiler interlock' to comply with building regulations.
Tank OLP	If the heat pump is doing DHW, the over load protection is connected to the manually resettable high limit stat on the DHW cylinder. Using this connection is a way of comply with G3 building regulations. If such connection is deemed unnecessary a jumper must be connected across these terminals if the heat pump is programmed for DHW production.
Tank Sensor	The tank sensor is essential for DHW production because it monitors the temperature in the DHW cylinder. The DHW sensor must be an NTC-2. This sensor is supplied as part of the standard package. To comply with wiring regulations it might be necessary for the sensor cable to be different cable from the other communication cables since it is extra low voltage and the other cables carrying 240V.

Section 6: Installation of the controller

The controller should be installed:

- In a place which is away from direct sunlight and high humidity.
- On a flat surface to prevent warping of the remote controller and damage to the LCD screen.
- Where the LCD can be easily seen for operation. (Standard height from the floor is 1.2 to 1.5 meters.)
- In a location where the cable can be fed though the wall or to the surface of the wall and attached in such a way as not to cause snagging.

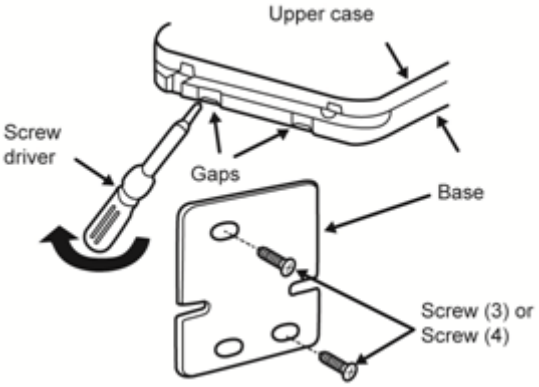


Figure 22: Opening the controller case

The controller should be installed in a location where it is possible for the home owner to regularly check for errors. The installer should tell the customer to check the display periodically for errors.

In the event of an error involving the compressor the inline flow boiler will back up the heat load which will have higher running costs compared to the compressor

Mounting the controller

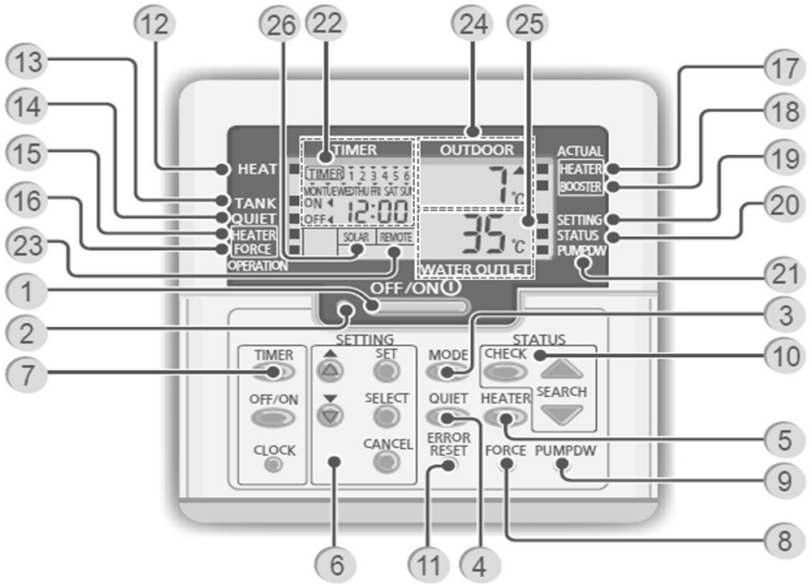
1. Remove the remote controller's base by inserting a flat-tipped screw driver 2 to 3 mm into one of the gaps at the bottom of the case, and twist to open as shown in Figure 22.

2. Do not remove the protective tape or paper which is fixed to the circuit board with-in the upper case.

3. Secure the base to a wall using the screws provided. Do not over tighten the screws.

4. Connect the controller cable to the upper case and route it so that it will not be pinched. Clip the upper case in place on to the base unit on the wall.

Section 7: Programming of the controller



1	OFF/ON Standby Button	14	Quiet Operation Indicator OFF/ON
2	Operation LED	15	Inline flow boiler request Indicator OFF/ON
3	Operation Mode Button	16	Force Inline flow boiler Request Indicator OFF/ON
4	Quiet Operation Button	17	Inline flow boiler status (OFF/ON)
5	Inline flow boiler (Enable / Disable)	18	Immersion Heater status (OFF/ON)
6	System Set-up Buttons	19	System Set-up mode Indicator OFF/ON
7	Timer Setting Buttons	20	System Check mode indicator OFF/ON
8	Force Inline flow boiler (during error)	21	System Pump down Mode indicator OFF/ON
9	System Pump down Button	22	Timer/Clock Setting Display
10	System Check Button	23	Remote Display (not used)
11	Error Reset Button	24	Outdoor Ambient Temperature Display
12	Heating Mode indicator (OFF/ON)	25	Water Outlet Temperature Display
13	Tank Mode indicator (OFF/ON)	26	Solar Display (not used on this model)

22 Timer/Clock Setting Display

The time and day must be set at first power on or after a prolonged power outage. The time must also be set before the other menus can be accessed.

1. Press CLOCK .

2. Press ▲ or ▼ to set current day.

3. Press SET to confirm.

4. Repeat steps 2 and 3 to set the current time.

1 OFF/ON Standby Button

When the unit is ON, operation LED is lit and the compressor will operate when required. When in standby the compressor will not operate however the circulation pump and inline flow boiler can be activated to provide frost protection.

3 Operation Mode Button

Press the mode button to cycle through the following options. A block will be displayed against the appropriate text on the controller's screen.

1. HEAT ONLY
2. HEAT + TANK
3. TANK ONLY

4 Quiet Operation Button

Reduces the noise of the heat pump by approximately 5dbA for the double fan heat pumps and 3dBA for the single fan heat pumps by reducing the fan and compressor speed. This will affect the COP and kW output.

5 Inline flow boiler (Enable / Disable)

The backup heat provides extra heating capacity via the inline flow boiler. The boiler will only be able to activate if this option is selected via this button and the other conditions set with in the controller are met. When this option is selected the backup heat indicator will be displayed.

10 System Check Button

Press CHECK for 5 seconds to enter this mode. Scroll through using ▲ or ▼ to check:

- Water inlet temperature
- Tank temperature
- Compressor running frequency
- Error History

Whilst in the check menu, the last error can be reset by pressing and holding the 'Error reset' button.

Setting the Advanced settings

The special functions can only be set if the Operation LED is OFF.

1. Press SET and CHECK for 5 seconds to enter the advanced settings mode. The “SETTING” indicator will be displayed.

2. Press ▲ or ▼ to scroll through the functions.

3. Press SELECT to enter the function.

4. Press ▲ or ▼ to select the desired value.

5. Press SET to confirm.

Table 3: Suggested Special Functions menu settings.

		Default setting	Heating and DHW (Packs 1 and 2)	Heating only (Pack 3)
con room	**Room thermostat connection (Yes / No)** Yes - the heat pump is interlocked with a wall mounted thermostat such has the Horstmann PRT1. No- There is no thermostat proving boiler interlock, the heating will be regulated on flow temperature.	No	Yes	Yes
con TANK	**Tank connection (Yes / No)** Yes - the heat pump is producing domestic hot water via a cylinder. No – there is no DHW installed.	No	Yes	No
Pry HEAT	**Heating Priority (Yes / No)** Yes – The heat pump will only start a DHW request using the compressor once the space heating is satisfied. No – The heat pump will operate based upon the parameters outlined below.	No	No	-
int HEAT	**Heating Heat-up interval set** Sets the period of time the heat pump will continue trying to meet the correct flow temperature before switching across to DHW production. This option is only available if PRY HEAT is set to NO.	3:00	0:30	-
int TANK	**Tank Heat-up interval set** Sets the period of time that the heat pump will try and meet the DHW set temperature before switching across to the heating demand. This option is only available if PRY HEAT is set to NO.	0:30	1:00	-
dly BOOSTER	**Booster heat delay time set** To set delay timer for cylinder immersion heater to ON if tank temperature is not reached. This option is only available if PRY HEAT is set to NO.	1:00	1:30	-

Setting the Advanced settings (continued)

The special functions can only be set if the Operation LED is OFF.

1. Press SET and CHECK for 5 seconds to enter the advanced settings mode. The “SETTING” indicator will be displayed.

2. Press or to scroll through the functions.

3. Press SELECT to enter the function.

4. Press or to select the desired value.

5. Press SET to confirm.

Table 4: Suggested Special Functions menu settings.

The water in the DHW cylinder will be much hotter than usual during the sterilisation process and this very hot temperature will be stored in the cylinder until it is drawn off.

Ensure that adequate means of preventing scalding have been implemented such as Thermostatic valves at the outlets.

		Default setting	Heating and DHW (Packs 1 and 2)	Heating only (Pack 3)
Fun Strl	**Sterilization (Yes / N0)** To sterilization of the DHW cylinder.	Yes	Yes	-
Str	**Sterilisation Day & Time set** To the start time for sterilisation once per week.	Sun 00:00	Fri 23:30	-
bo1 Strl	**Sterilisation temperature** To set the temperature for sterilisation function (40C ~ 75C)	70°C	60°C	-
oPr Str	**Sterilisation continue time** To set timer to maintain heating temperature in order to complete the sterilisation function (5minutes ~ 1 hour)	0:10	1:00	-

Setting the Advanced settings

The advanced settings can only be set if the Operation LED is OFF.

1. Press SET for 5 seconds to enter the advanced settings mode. The “SETTING” indicator will be displayed.

2. Press ▲ or ▼ to scroll through the functions.

3. Press SELECT to enter the function.

4. Press ▲ or ▼ to select the desired value.

5. Press SET to confirm.

Table 5: Advanced operation settings

	Default	Pack 1+ 2 Heating and DHW	Pack 3 Heating only
HEAT outLo (Range -15°C to 15°C)	0°C	The lower external air temperature on the weather compensation graph. Typically this is the ‘design temperature’ which is determined during the design process and is normally between -1°C to -5°C.	
HEAT outHi (Range -15°C to 15°C)	15°C	The higher external air temperature on the weather compensation graph. Recommended setting of 15°C or the building base temperature if known.	
HEAT H2O Lo (Range 25°C to 55°C)	55°C	The water flow temperature corresponding to the lower external air temperature on the weather compensation graph. The is determined based upon the choice of heat emitters by the system designer. Typical values are: Under floor: 35°C SmartRads: 45°C Radiators: 55°C	
HEAT H2O Hi (Range 25°C to 55°C)	32°C	The flow temperature required for the heat emitters to give the correct heat output at the minimum design temperature. Typical values are: Under floor: 20°C SmartRads: 35°C Radiators: 35°C	
HEAT OFF (Range 5°C to 35°C)	18°C	The external air temperature above which heating is no longer required so the heat pump operation is blocked. Typical value of 18°C.	
HEATER out ON (Range -15°C to 20°C)	-3°C	The external air temperature below which the inline flow boiler will be allowed to operate during normal operation. This is dependent upon the ‘bivalent temperature’ as determined during the design process. Typical values between -1°C and -5°C.	
TANK SEt (Range -40°C to 75°C)	55°C	The temperature of the stored hot water within the domestic hot water cylinder. Note that if the temperature is higher than the heat pump can achieve on its own via the compressor the immersion will automatically heat the cylinder to the required temperature.	
		45°C	N/A

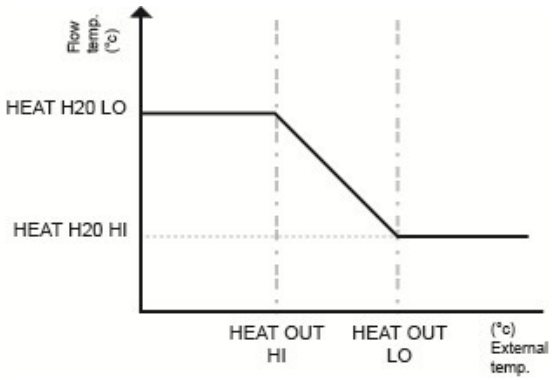
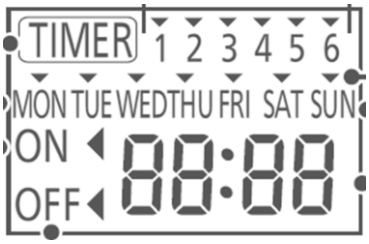


Figure 23: Weather compensation graph

Weekly timer setting



It is possible to set 6 programs per day. This function can be used to set the time and day in the week when:

- The mode changes to HEAT, HEAT + TANK or TANK.
- Quiet mode

Enable / Disable timer

When on the main screen press:

TIMER and SET to activate the timer. TIMER will now be displayed on the main screen.

TIMER and CANCEL to deactivate the timer.

Setting the timer

Press TIMER.

Press ▲ or ▼ to select the correct day. Press SELECT for each of the required days. A hat symbol will be displayed above the selected days.

The program number 1 to 6 will then start flashing. Press ▲ or ▼ to scroll to the correct program and then press SELECT. A hat symbol will be displayed above the selected days

Press OFF/ON to select if the heat pump should be turned on or off at the selected time.

Press UP or DOWN to choose the correct time.

Press the MODE and/or QUIET to choose what function will be activated.

Press SET to confirm the timer setting for the selected program.

Repeat the above steps to set up the other timer settings.

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Section 8: Setting the system to work

After completing the heating system and electrical connections the following procedure should be followed to set the system to work.

Hydraulic circuit

1. After flushing and filling the heating circuit check the air bleed points to release any air. Top up system if pressure drops below 0.8 bar.

   Once the heat pump starts to operate more air may be pushed around the circuit so this process will need to be repeated.

Heat pump

> Do not run the heat pump without the top cover fixed in place because is a vital part for structural rigidity.

1. Check the operation of pressure relief valve by using the lever as shown in Figure 11 ensuring that it re-seats after operation.
2. Check the circulation pump is on speed 3.
3. Ensure that the override levers on the 2 x two port valves are in the Auto position and the insert guide is removed.
4. Ensure all of the necessary RCCD's are in the ON position with the red indicator showing and then turn on the power supply to the heat pump at the distribution board.
5. Check the operation of the RCCD by using the test button and return them to the ON position.
6. Set up the controller as described in section 10 using the suggested settings shown in Table 3.
7. Check the controller is not in "Quiet" mode as this will reduce the heat pumps kW output and increase heat up times.
8. Place the controller in TANK mode.
9. Activate the heat pump by pressing the OFF / ON button on the controller.
10. Check the 2 port valve is directing the heating water into the top of the cylinder coil.
11. Check the water flow rate on the Taconova unit is within the correct limits. Adjust the circulation pump if necessary.
12. Check that the heat pump is able to achieve the correct temperature in the DHW cylinder by reading the sensor using the heat pump controller.
13. When the DHW demand is fulfilled check the 2 port valve switches across to heating when de-energised.
14. Switch the controller on to HEAT mode. If the outdoor temperature is higher than the HEAT OFF temperature (default 18C) the heat pump will not go into heating mode. Raise the HEAT OFF temperature if necessary.
15. Turn the Horstmann wall thermostat into standby mode. Check that the green light is on the heat pump controller and verify that the heat pump does not start.
16. Turn on the Horstmann room thermostat to create a heating demand.
17. Allow the system to come up to temperature and check all the plumbing joints for leaks.
18. Verify the flow rate using the Taconova flow setter and increase the pump speed upwards if necessary. Do not decrease the flow rate because this would decrease the flow rate during DHW production.
19. Set up the Horstmann PRT1 room thermostat for the correct user profile as stated in the installation instructions.
20. Check the strainer filter for any debris and clean as required.
21. If an extended warranty is required contact the Dimplex after sales department for the correct form.
22. Explain the system to the occupants and leave this manual and the User guide with them.

> The system should be inspected for the extended warranty two weeks after the system has been set to work.

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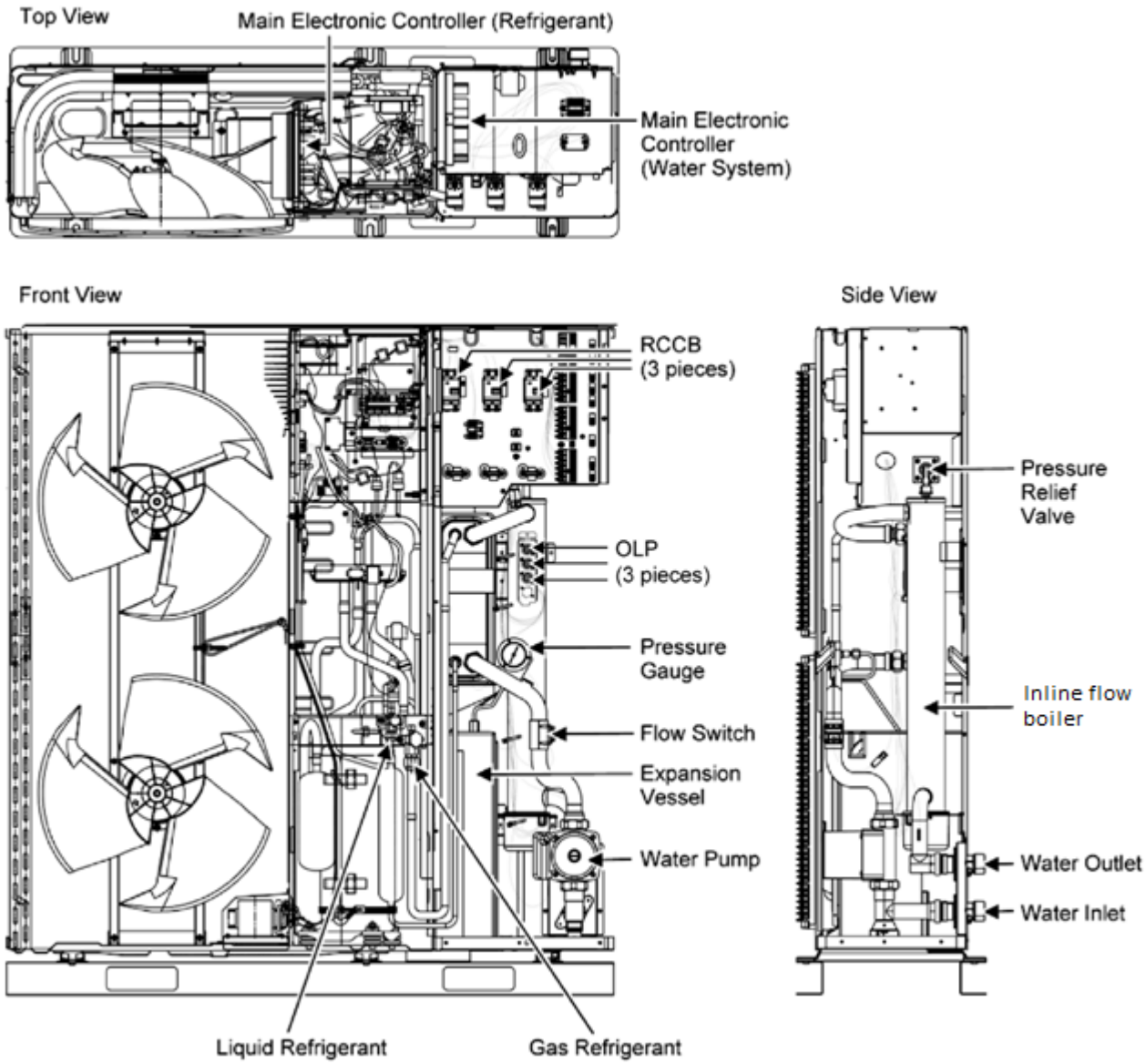
Section 9: Technical specification of the LA MI range



Component	Notes
Water Pump	Circulates water around the heating circuit.
Pressure Gauge	Gives the pressure of the water in the heating circuit.
Flow Switch	Checks the water flow in the heating circuit for efficient and safe operation.
Pressure relief valve	A safety device that relieves the pressure in the heating circuit if it exceeds 3 bar.
Inline flow boiler	Additional heating capacity for Bivalent operation.
OLP (Over load protection)	A safety device to prevent the inline flow boiler from overheating the heating circuit.
Sledge	Two metal rails increase the structural integrity of the heat pump and should not be removed.

Figure 24: Components of the LA 12 and 16 MI

Performance Data

1	Type and order code			LA 6 MI	LA 9 MI
2	**Design**				
2.1	Degree of protection according to EN 60 529 for a compact unit or heating element			IP 24	IP 24
2.2	Installation location			Outdoors	Outdoors
3	**Performance Data**				
3.1	Operating temperature limits:				
	Heating water flow / return flow		°C	Max. 55 / min. 25	Max. 55 / min. 25
	Air		°C	-20 to+35	-20 to+35
3.2	Heating water temperature difference	at A7 / W35	K	5	5
	Heat output / COP (defrost)	at A7 / W35 [1]	kW / ---	6 / 4.4	9 / 3.9
		at A2 / W35 [1]	kW / ---	5.5 / 3.5	7.6 / 3.1
		at A-7 / W35 [1]	kW / ---	5.9 / 2.8	8.9 / 2.4
		at A7 / W55	kW / ---	6 / 2.5	9 / 2.3
		at A2 / W55	kW / ---	5.5/ 2.2	7.9 / 2.0
		at A-7 / W55	kW / ---	5.8 / 1.8	7.6 / 1.5
	Heat output / COP (peak)	at A7 / W35	kW / ---	6 / 4.4	9 / 3.9
		at A2 / W35	kW / ---	6 / 3.7	9 / 3.4
		at A-7 / W35	kW / ---	5.9 / 2.8	8.9 / 2.4
		at A7 / W55	kW / ---	6 / 2.5	9 / 2.3
		at A2 / W55	kW / ---	6 / 2.2	8.9 / 2
		at A-7 / W55	kW / ---	5.8 / 1.8	7.6 / 1.5
3.3	A- weighted sound power level		dB(A)	58	61.5
3.4	Sound pressure level at 1m with Q=2 to MCS 020		dB(A)	54	54
3.5	Heating water flow rate		m³/h	1	1.6
3.6	Air flow		m³/h	2800	3100
3.7	Refrigerant; total filling weight		Type / kg	R410A / 1.45	R410A / 1.45
3.8	Lubricant; total filling quantity		Type / Litre	FV50S (PVE)) / 0.9	FV50S (PVE)) / 0.9
4	**Dimensions, connections and weight**				
4.1	Device dimensions without connections		H x W x L mm	860 x 1280 x 320	860 x 1280 x 320
4.2	Device connections to heating system		Inch	1 1/4" ext. thread	1 1/4" ext. thread
4.3	Weight of the transportable unit(s) incl. packaging		kg	122	122
5	**Electrical Connection (Heat Pump)**				
5.1	Nominal voltage		V	230	230
5.3	Starting current		A	N/A (Inverter driven)	N/A (Inverter driven)
5.4	Power factor MCCB 1 at A7 W35 / $\cos\varphi$		A / ---	0.95	0.95
6	**Back up heater nominal power consumption**		kW	3.0	3.0
7	**Heating Water Circuit**				
7.1	Expansion Vessel		Litre / Bar	6 / 3	6 / 3
7.2	Pressure Relief Valve		Bar	Open 3.0 / Close 2.65	Open 3.0 / Close 2.65
7.3	Free pressure, heating circulating pump (max speed)		kPa	56	56
8	**Other design characteristics**				
8.1	Defrosting			Automatic	Automatic
	Type of defrosting			Reverse Cycle	Reverse Cycle
8.2	Heating water in device protected against freezing			yes	yes
8.3	Controller internal / external			External	External

1) These data characterise the size and performance of the system according to EN 14511. Abbreviations have the following meaning, e.g. A2 / W35: outside temperature 2°C and heating water supply temperature 35°C. A2 / W35 test, takes into account defrosting as per EN 14511.

2) According to EN 12102, EN ISO 3744.

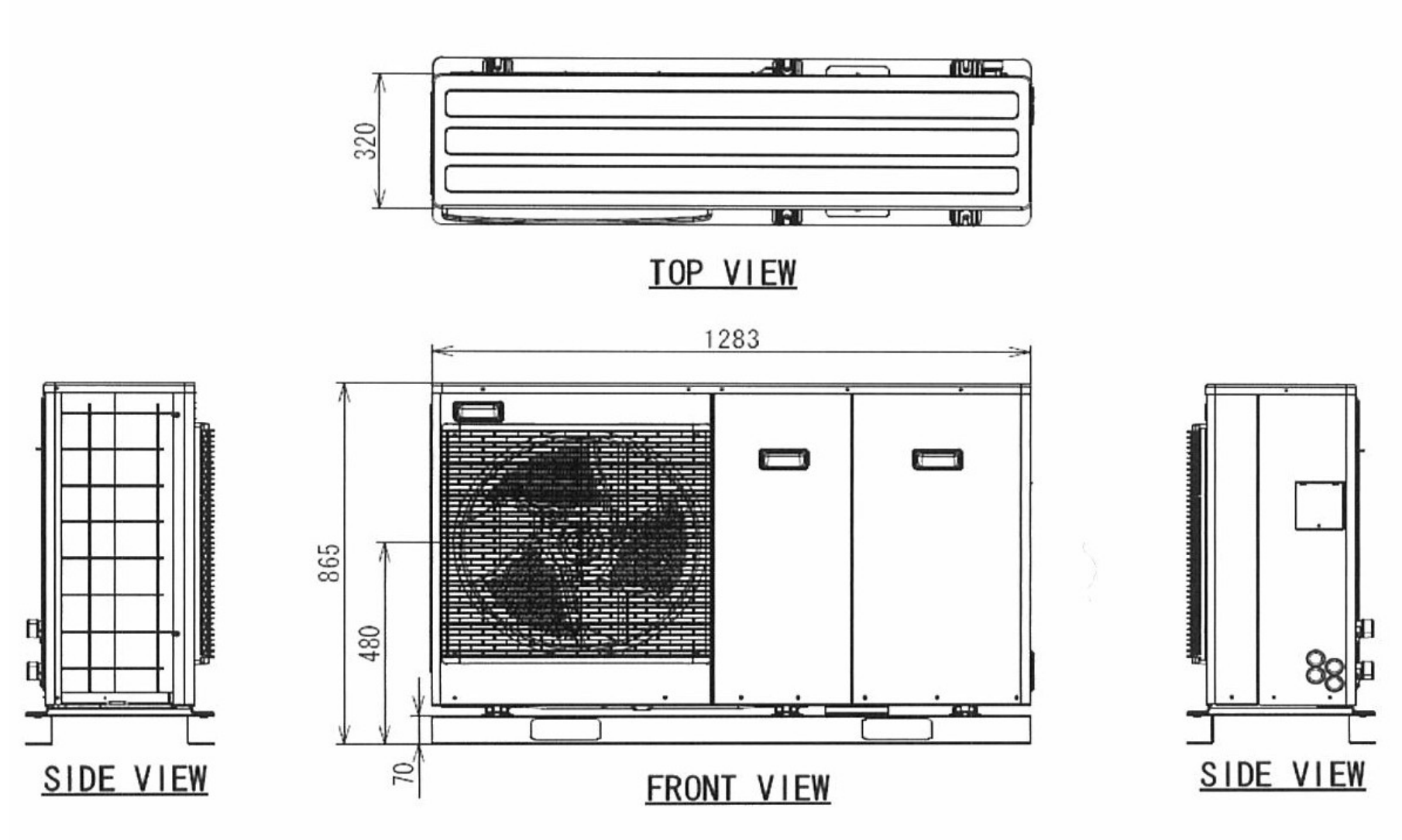
Performance Data

1	Type and order code			LA 12 MI	LA 16 MI
2	**Design**				
2.1	Degree of protection according to EN 60 529 for a compact unit or heating element			IP 24	IP 24
2.2	Installation location			Outdoors	Outdoors
3	**Performance Data**				
3.1	Operating temperature limits:				
	Heating water flow / return flow		°C	Max. 55 / min. 25	Max. 55 / min. 25
	Air		°C	-20 to+35	-20 to+35
3.2	Heating water temperature difference	at A7 / W35	K	5	5
	Heat output / COP (defrost)	at A7 / W35 [1]	kW / ---	11.9 / 4.6	15.9 / 4.1
		at A2 / W35 [1]	kW / ---	10.6 / 3.5	13.7 / 3.0
		at A-7 / W35 [1]	kW / ---	12.3 / 2.9	13.8 / 2.7
		at A7 / W55	kW / ---	11.1 / 2.9	12.9 / 2.5
		at A2 / W55	kW / ---	9.2 / 2.3	10.6 / 1.9
		at A-7 / W55	kW / ---	9.93 / 1.9	9.5 / 1.7
	Heat output / COP (peak)	at A7 / W35	kW / ---	12 / 4.7	16 / 4.2
		at A2 / W35	kW / ---	12 / 3.9	16 / 3.5
		at A-7 / W35	kW / ---	11.7 / 2.9	14.1 / 2.7
		at A7 / W55	kW / ---	12 / 2.9	14.5 / 2.7
		at A2 / W55	kW / ---	12 / 2.5	12.5 / 2.3
		at A-7 / W55	kW / ---	10.5 / 1.9	10.5 / 1.9
3.3	Sound power level		dB(A)	62	64
3.4	Sound pressure level at 1m with Q=2 to MCS 020		dB(A)	54	56
3.5	Heating water flow rate		m³/h	2.1	2.8
3.6	Air flow		m³/h	4800	5400
3.7	Refrigerant; total filling weight		Type / kg	R410A / 2.3	R410A / 2.3
3.8	Lubricant; total filling quantity		Type / Litre	FV50S (PVE)) / 1.2	FV50S (PVE)) / 1.2
4	**Dimensions, connections and weight**				
4.1	Device dimensions without connections		H x W x L mm	1410 x 1280 x 320	1410 x 1280 x 320
4.2	Device connections to heating system		Inch	1 1/4" ext. thread	1 1/4" ext. thread
4.3	Weight of the transportable unit(s) incl. packaging		kg	165	165
5	**Electrical Connection (Heat Pump)**				
5.1	Nominal voltage		V	230	230
5.2	Nominal power consumption [2] A7 W35		kW	2.6	3.9
5.3	Starting current		A	N/A (Inverter driven)	N/A (Inverter driven)
5.4	Power factor MCCB 1 at A7 W35 / cosφ		A / ---	0.96	0.96
6	**Back up heater nominal power**		kW	6.0	6.0
7	**Heating Water Circuit**				
7.1	Expansion Vessel		Litre / Bar	10 / 3	10 / 3
7.2	Pressure Relief Valve		Bar	Open 3.0 / Close 2.65	Open 3.0 / Close 2.65
7.3	Free pressure, heating circulating pump (max speed)		kPa	83	83
8	**Other design characteristics**				
8.1	Defrosting			Automatic	Automatic
	Type of defrosting			Reverse Cycle	Reverse Cycle
8.2	Heating water in device protected against freezing			Yes	yes
8.3	Controller internal / external			External	External

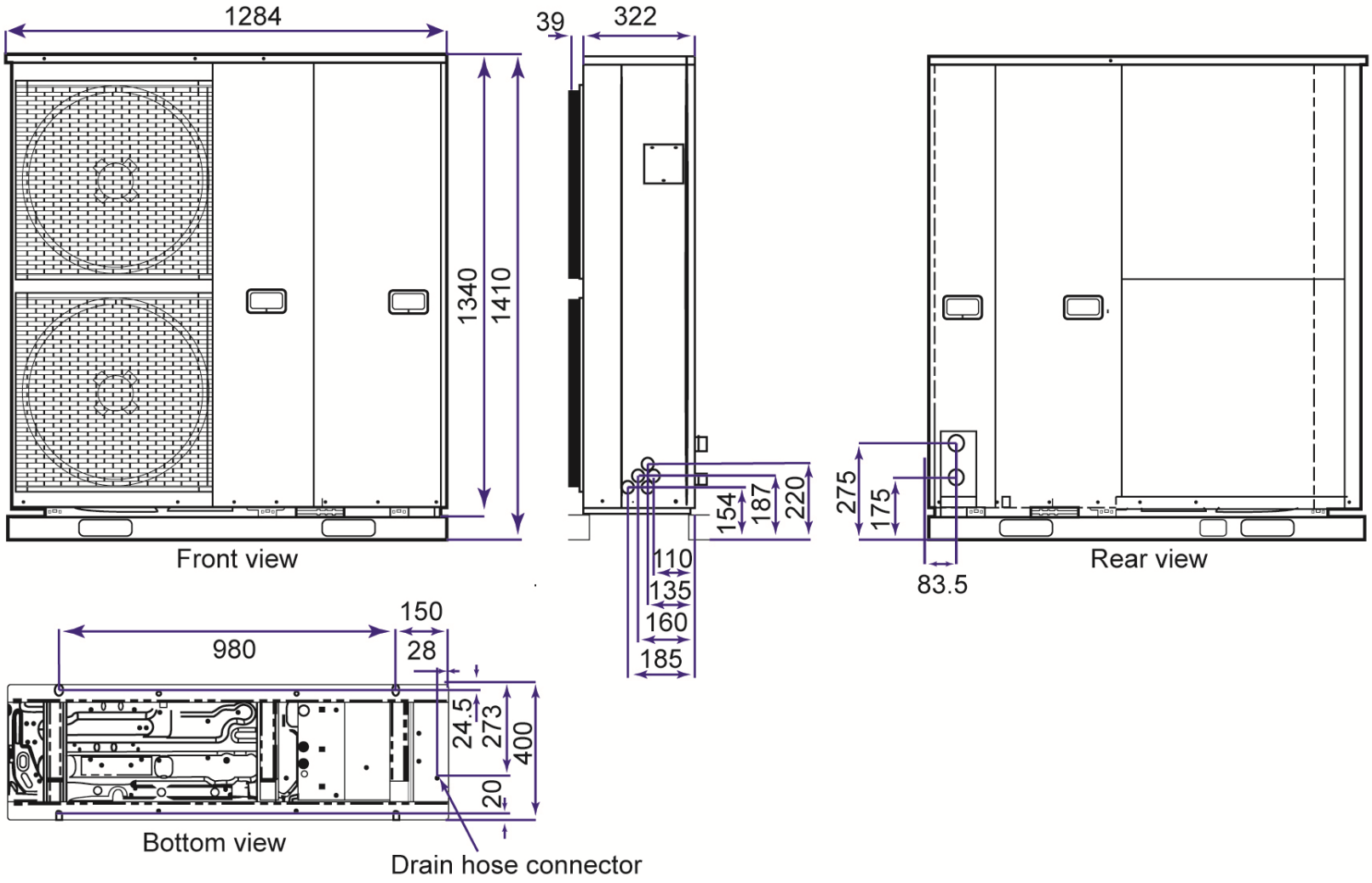
1) Abbreviations have the following meaning, e.g. A2 / W35: outside temperature 2°C and heating water supply temperature 35°C. A2 / W35 test, takes into account defrosting as per EN 14511.

2) According to EN 12102, EN ISO 3744.

Product Dimensions LA 6 MI and LA 9 MI



Product Dimensions LA 12 MI and LA 16 MI



Section 10: Annual System Health checks

Any work on the heat pump may only be performed by authorised and qualified after-sales service technicians.

The following items should be verified to ensure efficient operation of the system:

Heat pump

Never use cleaning agents containing sand, soda, acid or chloride as these can damage the surfaces.

- Check the fan is clear from debris.
- Check there is no abnormal sound during operation.

Electrical

Before opening the device, ensure that all circuits are isolated from the power supply.

- Power cable is firmly fixed.
- Earth wire connection is secure.
- RCCB operation is normal.
- Supply voltage is correct.

Hydraulic

- Water pressure higher than 1 bar.
- Pressure relief valve operation is normal.
- The filter is clear of debris.
- Check entire system for leaks.

Cylinder

- Set temperature is correct for efficient operation.
- Check the high temperature cut out stat on the cylinder immersion and inline flow boiler have not tripped.
- Temperature and pressure relief is operating correctly.

For full maintenance details for the cylinder consult the relevant instruction manual.

Wall mounted thermostat

- The set temperatures and heating periods are suitable for the occupants life style.

Heat pump controller

- LCD control panel operation is normal.
- Enquire if the user is warm enough and reduce the weather compensation curve to maximise the heat pump efficiency.

Section 11: Trouble shooting for the installer

Symptom	Cause
Heat pump emits mist	• This is normal during certain atmospheric conditions because the drop in air temperature caused by the heat pump is cold enough for mist to form.
Heat pump does not operate	• If the external temperature is above the HEAT OFF (in advanced settings menu) the heat pump will not operate. • If the water inlet temperature is lower than 20°C the inline flow boiler will activate to raise the temperature.
Property does not heat-up enough	• Heat pump undersized for the heat demand of the property at low external temperatures. • Water flow temperature is set too low for the heat emitters installed.
Property does not heat up quickly	• Heat pumps are designed for continuous operation and there is typically not a large overload factor to heat the building quickly. The property temperature should not be allowed to significantly drop during periods of cold weather.
System is noisy during operation	• Check the unit is not installed on an incline • Check the covers are closed correctly.
The controller is blank	• Check the circuit breaker to the heat pump.
The hot water cylinder is cold	• Check that the controller is in TANK mode
The hot water cylinder is not hot enough	• Check that the coil is correctly sized for the heat pumps output. • Check that the temperature setting within the controller is set to 45C.
Ice has formed on the heat pump	• Ice formation on the evaporator is normal during cold weather. The defrost function should keep the majority of the coil clear of ice to allow adequate air flow. Typically if the ice is less than 1cm thick and the controller does not show a fault the system is operating correctly.

Section 12: Error codes

Diagnosis display	Abnormality / Protection control	Abnormality Judgement	Primary location to verify
H12	Indoor/Outdoor capacity unmatched	90s after power supply	• Indoor/outdoor connection wire • Indoor/outdoor PCB • Specification and combination table in Catalogue
H15	Outdoor compressor temperature sensor abnormality	Continue for 5 sec.	• Compressor temperature sensor (defective or disconnected)
H23	Indoor refrigerant liquid temperature sensor abnormality	Continue for 5 sec.	• Refrigerant liquid temperature sensor (defective or disconnected)
H42	Compressor low pressure abnormality		• Outdoor pipe temperature sensor • Clogged expansion valve or strainer • Insufficient refrigerant • Outdoor PCB • Compressor
H62	Water flow switch abnormality	Continue for 1 min.	• Water flow switch
H64	Refrigerant high pressure abnormality	Continue for 5 sec.	• Outdoor high pressure sensor (defective or disconnected)
H70	Back-up heater OLP abnormality	Continue for 60 sec.	• Back-up heater OLP (Disconnection or activated)
H72	Tank sensor abnormal	Continue for 5 sec.	• Tank sensor
H76	Indoor - remote control communication abnormality		• Indoor - control panel (defective or disconnected)
H90	Indoor / outdoor abnormal Communication	> 1 min after starting operation	• Internal / external cable connections • Indoor / Outdoor PCB
H91	Tank heater OLP abnormality	Continue for 60 sec.	• Domestic hot water cylinder high limit stat or temperature thermostat disconnection or activated. • Check thermostat is set to maximum temperature on the cylinder. •Test for continuity between pins13 and 14 at the heat pump.
H95	Indoor/Outdoor wrong connection		• Indoor/Outdoor supply voltage
H98	Outdoor high pressure overload protection		• Outdoor high pressure sensor • Water pump or water leakage • Clogged expansion valve or strainer • Excess refrigerant • Outdoor PCB
H99	Indoor heat exchanger freeze prevention		• Indoor heat exchanger • Refrigerant shortage

Diagnosis display	Abnormality / Protection control	Abnormality Judgement	Primary location to verify
F12	Pressure switch activate	4 times occurrence within 20 minutes	• Pressure switch
F14	Outdoor compressor abnormal revolution	4 times occurrence within 20 minutes	• Outdoor compressor
F15	Outdoor fan motor lock abnormality	2 times occurrence within 30 minutes	• Outdoor PCB • Outdoor fan motor
F16	Total running current protection	3 times occurrence within 20 minutes	• Excess refrigerant • Outdoor PCB
F20	Outdoor compressor overheating protection	4 times occurrence within 30 minutes	• Compressor tank temperature sensor • Clogged expansion valve or strainer • Insufficient refrigerant • Outdoor PCB • Compressor
F22	IPM (power transistor) overheating protection	3 times occurrence within 30 minutes	• Improper heat exchange • IPM (Power transistor)
F23	Outdoor Direct Current (DC) peak detection	7 times occurrence continuously	• Outdoor PCB • Compressor
F24	Refrigeration cycle abnormality	2 times occurrence within 20 minutes	• Insufficient refrigerant • Outdoor PCB • Compressor low compression
F25	Cooling / Heating cycle changeover abnormality	4 times occurrence within 30 minutes	• 4-way valve • V-coil
F27	Pressure switch abnormality	Continue for 1 min.	• Pressure switch
F36	Outdoor air temperature sensor abnormality	Continue for 5 sec.	Outdoor air temperature sensor (defective or disconnected)
F37	Indoor water inlet temperature sensor Abnormality	Continue for 5 sec.	Water inlet temperature sensor (defective or disconnected)
F40	Outdoor discharge pipe temperature sensor abnormality	Continue for 5 sec.	• Outdoor discharge pipe temperature sensor (defective or disconnected)
F41	PFC control	4 times occurrence within 10 Minutes	• Voltage at PFC
F42	Outdoor heat exchanger temperature sensor abnormality	Continue for 5 sec.	• Outdoor heat exchanger temperature sensor (defective or disconnected)

Diagnosis display	Abnormality / Protection control	Abnormality Judgement	Primary location to verify
F43	Outdoor defrost sensor abnormality	Continue for 5 sec.	• Outdoor defrost sensor (defective or disconnected)
F45	Indoor water outlet temperature sensor Abnormality	Continue for 5 sec.	• Water outlet temperature sensor (defective or disconnected)
F46	Outdoor Current Transformer open Circuit	-	• Insufficient refrigerant • Outdoor PCB • Compressor low
F95	Cooling high pressure overload protection	-	• Outdoor high pressure sensor • Water pump or water leakage • Clogged expansion valve or strainer • Excess refrigerant • Outdoor PCB

Section 13: Standard packages

To assist with the design and installation of a system Dimplex have collated wiring and hydraulic schematics for the following designs:

Package 1 and 2

- Heating and Domestic hot water preparation is done using the heat pump.
- Buffer cylinder is supplied either in a combined buffer/DHW cylinder (pack 1) or as a standalone buffer (pack 2)
- 2 x two port valves are used to switch between heating and DHW preparation.
- Room temperature is time and temperature controlled using the Horstmann wall mounted thermostat. The thermostat will create a demand if the temperature drops below 15°C whilst the system is off to prevent the base temperature dropping too low.
- DHW temperature is measured via NTC2 sensor and time of production is set using the Heat pump controller.
- Includes a Taconova flow checker for efficient setup and isolation valves with inbuilt filter to ensure debris is removed.

Package 3

- Package for space heating only. No hot water cylinder is included.
- Buffer cylinder is supplied to ensure minimum water volume.
- Room temperature is time and temperature controlled using the Horstmann wall mounted thermostat. The thermostat will create a demand if the temperature drops below 15°C whilst the system is off to prevent the base temperature dropping too low.
- Includes a Taconova flow checker for efficient setup and isolation valves with inbuilt filter to ensure debris is removed.

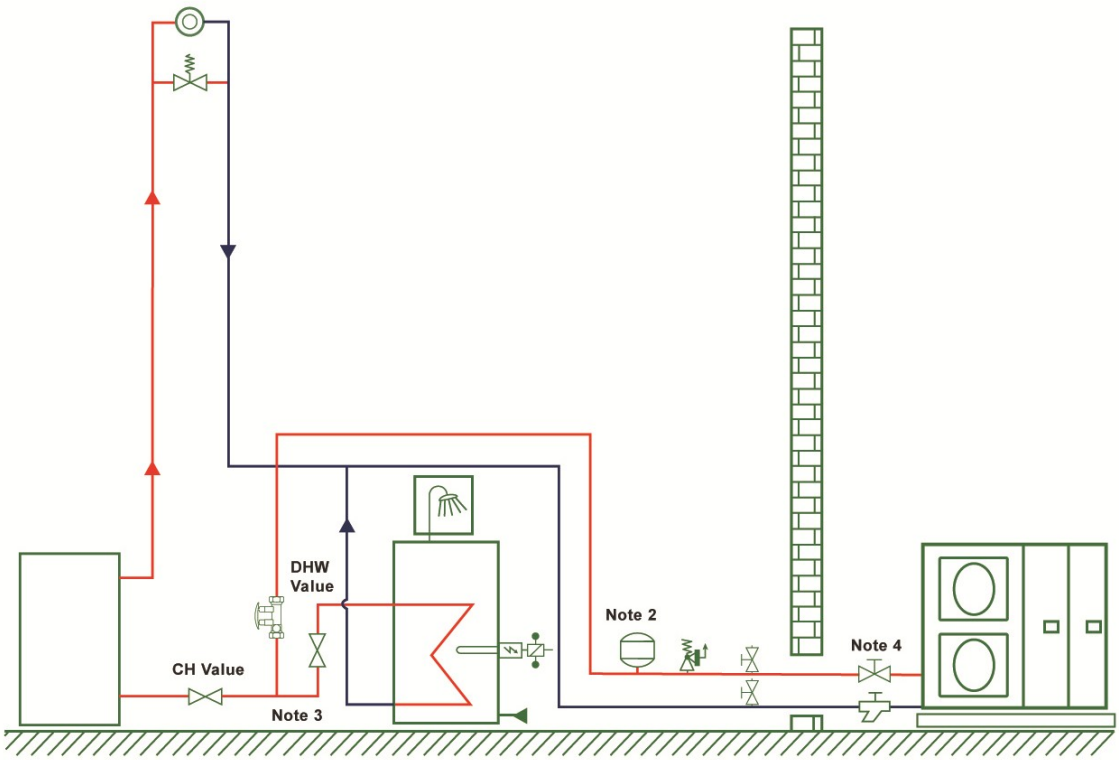
Suggested additional components

	Pack 1 1 heating zone and DHW with combined buffer and DHW cylinder	Pack 2 1 heating zone and DHW with separate buffer and DHW cylinder	Pack 3 1 heating zone with buffer tank
Concrete base, fixing bolts, condensate drain method	✓	✓	✓
Interconnecting pipe work	✓	✓	✓
Ducting for wiring and pipe work	✓	✓	✓
Chemicals for cleaning existing pipe work and standard corrosion inhibitors for central heating systems	✓	✓	✓
Air purge valves at every high point	✓	✓	✓
Isolation switch for isolation of heat pump during maintenance	✓	✓	✓
Multi core cable for connection of wiring centre to heat pump	✓	✓	✓
2 core cable for connection of DHW sensor	✓	✓	No
3 core cable for connection of DHW immersion heater to heat pump	Depends upon schematic. Either cable or relay required.	Depends upon schematic. Either cable or relay required.	No
Relay for switching immersion heater			
3 core cable for mains supply from Distribution board to Isolation switch.	✓	✓	✓
Expansion vessel	An expansion internal vessel is supplied, an addition one may be required depending upon system volume.		
Flushing & Filling point / Drain down point	✓	✓	✓
Bypass for heating circuit	✓	✓	✓
Heat emitters	✓	✓	✓

Table 6: Components not supplied by Dimplex but required to complete the installation.

Package 1 and 2 – Plumbing Schematic

1 x heating zone, buffer and DHW cylinder, DHW immersion powered by heat pump



Notes:

1. Air bleed valves must be installed at every high point.

2. Depending upon the system volume an expansion vessel may be required in addition to the one already installed in the LA MI

3. When using a Dimplex Ec-Eau cylinder with an Air-Eau heat pump it is not necessary to install a separate 2 port value for G3 compliance.

4. It is a condition of the Guarantee that the filter (supplied in the heat pump packages) is fitted prior to the heat pump inlet.

5. Connections should be provided so that the system can be flushed of debris, filled and then purged of air without passing debris through the heat pump.

User's guide to an Air-eau heat pump system

How the heat system works

The heat pump takes renewable energy from the surrounding air and converts it into usable heat. For every 1kW of electrical energy the heat pump uses it will extract approximately 3kW of energy from the outside air making it 400% efficient which reduces carbon emissions and money off your fuel bills!

How to operate your system efficiently

To operate the system in the most efficient way:

- Keep the room temperature as low as possible and turn the heating to set back when the property is not occupied.
- If the property has an off-peak tariff check with your installer that they have set the DHW recovery and sterilisation to happen during off-peak times.
- Store the domestic hot water at a lower enough temperature so the immersion is not required to heat the Domestic hot water.

Keep power to the unit

The power should never be turned off except for maintenance since the water in the external parts of the heat pump are liable to freezing during cold weather. This would lead to permanent irreparable damage to the heat pump.

The heat pump is designed to operate extremely efficiently all the time and should not be turned off at night time, over summer or when you are away from the house.

System health check

Your installer should have left you with a log book that contains all the information required for your annual system health check. If this is missing please contact Dimplex customer care.

What to do if your system stops working

If anything goes wrong with the heat pump you should try to solve the problem using the trouble shooting guide below. If this is not successful you should contact Dimplex customer care for technical support over the phone. If the problem cannot be resolved over the phone you should contact your installer.

INSERT INSTALLER DETAILS HERE

Advanced operation

At the commissioning stage the installer will set-up the advanced settings. If the user needs to change any of the following settings they should consult the installation manual.

- System flow temperature and weather compensation.
- Temperature of the DHW cylinder

Users Troubleshooting guide

Hot water cylinder is cold	Check the system setting controller is in TANK mode.
Heating circuit is cold	Check the system setting controller is in HEAT mode.
Rooms are not warm enough	Check the heat emitters are on Check they were turned on early enough.
No hot water or space heating	Check the heat pump controller: • Ensure the green light is on. • Check for an error number and contact your installer.
Heat pump outside drips water or emits steam	This is a normal process during cooler weather and is nothing to worry about.

The amount of heat that the system can output is closely matched to the maximum load of the property. For this reason, the if the blue button is pressed on the Central heating controller you should be aware it will take a long time to recover the room temperature from a cold start, especially during periods of extremely cold weather.

Adjusting the heat pump

OFF/ON Standby Button

When the unit is ON, the operation LED is lit and the compressor will operate when required. When in standby the compressor will not operate however the circulation pump and inline flow boiler can be activated to provide frost protection.

The green LED should remain on at all times.

Operation Mode Button

Press the mode button to cycle through the following options. A block will be displayed against the appropriate text on the controller's screen.

1. HEAT ONLY
2. HEAT + TANK
3. TANK ONLY

Setting the DHW timer schedules

If required, the DHW production times can be adjusted by pressing the 'timer ' button. Consult the installation instructions to find out how to set the time periods.

Quiet Operation Button

If pressed, this will reduces the noise of the heat pump by This will affect the COP and kW output. This feature can be set up on the "timer". Consult the installation instructions for more information.

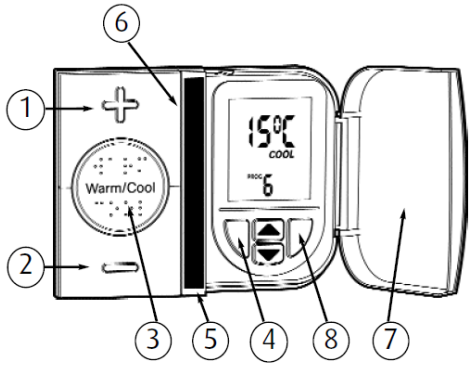
Boosting the amount of space heating

During periods of cold weather, or if you require the property to be heated up quickly, the boost button can be pressed on the wall mounted controller. The boost heater will automatically turn off once the property is up to temperature.

During an error the system will use an electric flow boiler to keep the property warm – this will have higher running costs compared to the heat pump. The user should regularly check the system controller for error such as H91. In the event of an error you should contact your installer.

Adjusting the central heating

The central heating is controlled using the wall mounted thermostat shown below. You should press the large buttons to adjust the room temperature.



Increasing the room temperautre

If the red lights are not on, press the 'Warm / Cool' button (3). The blue light means the unit is working on the set back temperature. The '+' or '-' buttons do not work when the thermostat is in setback.

When one or more red lights are on, you can increase the temperature by pressing the '+' button (1). For example, press once to go up by 1 degree C, or press twice to go up by 2 degrees C.

Decrease the room temperature

When the two or three red lights are on, the temperature can also be lowered to the centre position by using the '-' button (2).

'Short' heating off periods

If you are going to bed or going out for the day you can turn the heading off by using the 'Warm / Cool' button (3) until the blue lights come on. The heating will automatically come back on during the next time period.

'Long' off periods

If you want to turn the heating off long periods such as you are going on holiday or during summer you press the blue button (4) under the flap (7). When you want to go back to normal operation they will open the flap and press the Blue button again.

Time periods

The wall thermostat will automatically adjust between heating and set back temperatures. If you adjust the temperature using the large buttons the temperature will revert back to the pre-set value when the next time period starts. To change the time periods consult the PRT1 manual.

Heat pump internal wiring centre
(inside heat pump)

RCCB1 RCCB2 RCCB3*

*only on LA 12/16 MI

Isolation Switch
(supplied by installer)

Ducting Form
Heating Pump to Internal
(supplied by installer)

Distribution Board
(supplied by installer)

3 core high current cable
(supplied by installer)

3 core high current cable
(supplied by installer)

Airing Cupboard

DHW immersion (Max 3 KV)
(supplied in kit)

HP 7 — IM L
HP 8 — IM N
HP ⏚ — IM E

Heat pump wiring centre (HPWC)

HP8 - IM N
HP7 - IM L
HP ⏚ - IM E

External Control Cable
Tank Sensor Cable
Tank OLP Cable
Receiver Cable
Booster (immersion) Cable
Three-way valve Cable

HP18
HP17
HP16
HP15
HP14
HP13
HEAT HP12
HP11
M HP10
L HP9
N HP8
I HP7
HP ⏚
M HP6
OPEN (DHW) HP5
CLOSE (Heating) HP4
HP3
HP2
HP1

HP ⏚ WC3
HP14 - WC11
HP13 - WC10
HP12 - WC12
HP9- WC1
HP6- WC2
HP5- WC5
HP4- WC8

8 core cable
(supplied by installer)

HP16- WC14
HP15- WC13

2 core cable
(supplied by installer)

Wiring Centre
(supplied by installer)

HP9	WC1	Wall Stat (L) Valve 1 and 2 (grey)
HP8	WC2	Wall Stat (N) Valve 1 and 2 (blue)
HP ⏚	WC3	Wall Stat (E) Valve 1 and 2 (green/yellow)
	WC4	Value 1 (White)
HP5	WC5	Valve 1 (Brown)
	WC6	Valve 1 (Orange)
	WC7	Valve 2 (White)
HP4	WC8	Valve 2 (Brown)
	WC9	Valve 2 (Orange)
HP13	WC10	DHW Thermostat (S2)
HP14	WC11	DHW Thermostat (S1)
HP12	WC12	Wall Stat (4)
HP15	WC13	Sensor (1)
HP16	WC14	Sensor (2)

WC2 — v1 Blue
WC3 — v1 Green Yellow
WC4 — v1 White
WC1 — v1 Grey
WC6 — v1 Orange
WC5 — v1 Brown

Value 1
Domestic Hot water
Hortsmann 2 port valve
(supplied in kit)

WC2 — v1 Blue
WC3 — v1 Green Yellow
WC4 — v1 White
WC1 — v1 Grey
WC6 — v1 Orange
WC5 — v1 Brown

Value 2
Central Heating
Hortsmann 2 port valve
(supplied in kit)

DHW sensor
(supplied in kit)

WC13
WC14

DHW Thermostat
(supplied in kit)

Reg stat
High limit stat

WC11 — S1
WC10 — S2
WC3 — E

3 core cable
(supplied by installer)

WC11
WC10
WC3

E WC2 WC1 WC12

Control Line(15m)
(supplied with
heat pump)

Living Area

System Controller
(supplied with heat pump)

4 core cable
(supplied by installer)

WC2 — TN
WC1 — TL
T1
T2
T3
WC12 — T4
TE

Hortsmann PRT 1 Wall Thermostat
(supplied in kit)

Warm Cool